WHAT IS CLAIMED IS:

1. A control unit for an electric power steering apparatus for applying a steering assist force by a motor to a steering system of a vehicle, the control unit comprising:

a plurality of position detecting sensors for detecting a rotation position of the motor and outputting it as binary outputs;

a state function calculating means which calculates a output value of a state function for every predetermined time by inputting outputs of the plurality of position detecting sensors to the state function; and

a judging means to be input the output values of the state function which respectively continued through the predetermined time, so as to judge a rotating direction of the motor and abnormality of rotating direction detection of the motor at one time.

2. The control unit for an electric power steering apparatus according to claim 1, wherein the state function is a function the output value of which is in a one-to-one relationship with the rotation position of the motor without redundancy.

3. The control unit for an electric power steering apparatus according to claim 1 or 2, wherein the judging means is formed of storage means and judgment table, and the judgment table outputs a judgment result, i.e., a clockwise rotation, a counterclockwise rotation, a stop, or the abnormality of the

rotating direction detection of the motor.

4. The control unit for an electric power steering apparatus according to claim 1 or 2 further comprising relative steering angle calculating means for converting each of the clockwise rotation, the counterclockwise rotation, and the stop obtained from the rotating direction into a numerical value and integrating the numerical value every predetermined time to calculate a steering wheel relative steering angle or a column relative steering angle.

5. The control unit for an electric power steering apparatus according to claim 4 further comprising steering velocity calculating means for calculating a steering wheel steering velocity or a column steering velocity by using the steering wheel relative steering angle or the column relative steering angle and the predetermined time.

6. The control unit for an electric power steering apparatus according to any one of claims 1 to 5, wherein the position detecting sensors are the Hall sensors.